

tional threshold of \$50,000 per QALY, manipulation was cost-effective compared to NSAIDs (the least costly alternative) (ICER=\$25,123 per QALY). NSAIDs were most likely cost-effective at a WTP of <\$24,000 per QALY whereas manipulation was most likely cost-effective between \$24,000 and \$50,000 per QALY. Cyclooxygenase-2 selective inhibitors and exercise were subject to simple dominance. The ICER for mobilization was \$381,926 per QALY. Probabilistic sensitivity analyses suggested a high level of decision uncertainty. **CONCLUSIONS:** Manipulation is cost-effective compared to NSAIDs at a conventional threshold of \$50,000 per QALY. Under varying thresholds, NSAIDs are cost effective at <\$24,000 per QALY. We will identify the main drivers of the uncertainty surrounding the decision about which treatment to adopt in forthcoming analyses.

### PMS32

#### ECONOMIC EVALUATION OF THE TREATMENT OF RHEUMATOID ARTHRITIS WITH ANTI-TNF BIOLOGICAL THERAPIES IN COLOMBIA

Quintana G<sup>1</sup>, Restrepo JP<sup>2</sup>, Caceres HA<sup>3</sup>, Rueda JD<sup>4</sup>, Rosselli D<sup>4</sup>

<sup>1</sup>Universidad Nacional de Colombia - Universidad de los Andes-Fundación Santa Fe de Bogotá, Bogotá, DC, Colombia, <sup>2</sup>Universidad del Quindío, Armenia, Colombia, <sup>3</sup>Pfizer Colombia, Bogotá, DC, Colombia, <sup>4</sup>Universidad Javeriana, Bogotá, DC, Colombia

**OBJECTIVES:** Rheumatoid arthritis (RA) is a chronic illness that implies high direct and indirect costs for the health system, particularly when biological therapy is prescribed. The aim of this study was to evaluate the cost-utility of etanercept, adalimumab and infliximab for the treatment of rheumatoid arthritis (RA) in Colombian adult population. **METHODS:** A cost-utility analysis was performed from a Markov model using 3-month cycles, assuming adult patients with RA treated for the first time with anti-TNF drugs, in combination with methotrexate (MTX). The time horizon was 2 years and we used the third party payer perspective. The model was built using effectiveness, safety and utility measures taken from international registers and clinical trials. Costs were gathered locally and results are expressed in 2010 Colombian pesos; utility was measured in quality-adjusted life-years (QALY) derived from ACR50 response, compliances rates and adverse events incidence. Drug costs (fixed by regulations from Ministry of Social Protection) as well as treatment costs of moderate and serious adverse events mainly tuberculosis, pneumonia and cancer included; finally a univariate sensitivity analysis was carried out. **RESULTS:** QALYs gained with etanercept, adalimumab and infliximab were 1.4689, 1.4627 and 1.4340, respectively; and mean estimated costs resulted in US\$41,050, US\$43,175 and US\$47,190, respectively. Etanercept was the cost-saving strategy, with a cost-effectiveness ratio of US\$27,945/QALY vs. US\$29,520/QALY and US\$32,910/QALY in comparison to adalimumab and infliximab, explained by providing a better safety profile, better adherence to treatment and lower drug costs. The key variables in sensitivity analysis were: drug costs, frequency of adverse events and compliance rates, and conclusions were unaffected, even when using extreme values, supporting the robustness of the model. **CONCLUSIONS:** Treatment of RA with etanercept+MTX is the dominant combination in Colombia, against adalimumab+MTX or infliximab+MTX, by providing more QALYs gained at lower cost.

### PMS33

#### COST EFFECTIVENESS OF ABATACEPT IN COMPARISON WITH OTHER BIOLOGIC THERAPIES FOR THE TREATMENT OF MODERATE TO SEVERE ACTIVE RHEUMATOID ARTHRITIS PATIENTS WHO HAVE FAILED TO METHOTREXATE BASED TREATMENT AT ESSALUD IN 2010

Becerra Rojas F<sup>1</sup>, Benites Chacaltana C<sup>2</sup>, Aiello EC<sup>3</sup>, Zingoni C<sup>3</sup>, Bergman G<sup>4</sup>, Drost P<sup>5</sup>, Valencia JE<sup>6</sup>, Sanabria Montañez C<sup>7</sup>

<sup>1</sup>Edgardo Rebagliati Martins Hospital, Lima, Peru, <sup>2</sup>Bristol-Myers Squibb, Lima, Peru, <sup>3</sup>Bristol-Myers Squibb, Buenos Aires, Argentina, <sup>4</sup>MAPI Values, Houten, The Netherlands, <sup>5</sup>Bristol-Myers Squibb, Braine-l'Alleud, Belgium, <sup>6</sup>Bristol-Myers Squibb, Bogota, Colombia, <sup>7</sup>Universidad Nacional Mayor de San Marcos, Lima, Peru

**OBJECTIVES:** To estimate the cost-effectiveness of Abatacept in combination with Methotrexate (MTX) versus other biologic DMARDs in combination with MTX in patients with moderate to severe active Rheumatoid Arthritis. **METHODS:** A sequences treatment model was adapted for the representation of disability in terms of HAQ Index on a 5 year horizon for a cohort of 1000 patients. Abatacept in combination with MTX was compared with etanercept, rituximab, infliximab, adalimumab and tocilizumab, all of them associated with MTX. Currency is expressed in Peruvian soles (S/.) of 2010. **RESULTS:** The cost of treatment with Abatacept resulted in S/. 169 263 and its effectiveness was found to be 1.96 QALY. Regarding Etanercept, Adalimumab, Infliximab and Tocilizumab, Abatacept has shown to be the most effective in terms of QALYs and the least expensive. Regarding Rituximab, Abatacept has an incremental cost effectiveness ratio of S/. 75 493 per QALY gained. **CONCLUSIONS:** According to this model and inputs, Abatacept was found to be dominant against Etanercept, Adalimumab, Infliximab y Tocilizumab, from the Health Social Security (EsSalud) perspective for the treatment of moderate to severe active Rheumatoid Arthritis in patients who have failed to MTX based treatment.

### PMS34

#### COST-UTILITY ANALYSIS OF DENOSUMAB VERSUS RALOXIFENE FOR TREATING OSTEOPOROSIS IN POST-MENOPAUSAL WOMEN IN THE UNITED STATES

Beaubrun AC, Daugherty JB  
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

**OBJECTIVES:** Denosumab has recently been approved in the United States for the treatment of postmenopausal women with osteoporosis. Denosumab, a twice yearly 60mg injection, provides an opportunity to model the effect of improved treatment persistence on outcomes when compared to the daily dosing required of patients on 60mg raloxifene, also a second line osteoporotic therapy. **METHODS:** A previously developed Markov model was used to simulate outcomes for postmenopausal women aged 65 with a bone mineral density (BMD) of less than -2.5. We assumed a 20-year time horizon and a managed care perspective. Modeled

health states included vertebral, hip, and wrist fractures. Disease progression parameters were derived from phase III clinical trials. Costs were obtained using large epidemiologic studies. Quality-adjusted life-years (QALYs) were used to assess outcomes, and utility weights were derived from recent systematic reviews detailing utility values associated with various osteoporotic fracture states. **RESULTS:** Denosumab is dominated by raloxifene, as indicated by higher costs and poorer outcomes. Persistence rates associated with both treatments had the greatest impact on resulting incremental cost-effectiveness ratios. Estimated 20-year aggregated costs and QALYs per person using denosumab are \$26,123 and 12.63, respectively compared to \$23,670 per person and 13.05 per person for raloxifene. The ICER was most sensitive to changes in persistence rates. Raloxifene was universally dominant under all one-way sensitivity analysis scenarios. **CONCLUSIONS:** Denosumab is not cost-effective compared to raloxifene. Further research should assess whether the costs associated with improved denosumab persistence are offset by reduced fracture rates and costs of fracture treatment.

### PMS35

#### COST UTILITY ANALYSIS OF CHONDROITIN SULPHATE(CS) IN THE TREATMENT OF OSTEOARTHRITIS (OA) OF THE KNEE IN MEXICAN PATIENTS

Soto-Molina H<sup>1</sup>, Rizzoli-Cordoba A<sup>2</sup>, Pizarro-Castellanos M<sup>2</sup>, Delgado-Ginebra I<sup>3</sup>, Tellez-Giron G<sup>1</sup>

<sup>1</sup>Iteliness Consulting, Mexico City, Mexico, <sup>2</sup>Hospital Infantil de México Federico Gómez, Mexico City, Mexico, <sup>3</sup>Panamerican University, Mexico City, Mexico

**OBJECTIVES:** The objective of this research was to assess the cost-effectiveness of Chondroitin Sulphate (CS) used as treatment of Osteoarthritis (OA) of the knee in Mexican patients from the Mexican Public Health Institution perspective. **METHODS:** We developed a Markov analytical model for a cohort with 10 years to assess costs and benefits associated with the use of CS in the treatment of OA in Mexican patients. Comparator for CS was normal care (gold standard treatment). Effectiveness measure was QALYs. These values were estimated by literature review validated by expert panel consensus. The direct costs, treatment of adverse events and knee surgery in the treatment of OA were estimated. The unitary costs were obtained from the Mexican public health institutions. All costs were calculated in 2010 Mexican Pesos (MXP). Incremental-cost-effectiveness-ratios were expressed as cost per quality-adjusted-life-year (QALY). Costs and QALYs were discounted at 5%. Probabilistic sensitivity analyses via Monte Carlo simulations were undertaken to incorporate likely distributional properties of key model parameters. **RESULTS:** The QALYs increased with CS on 4.89 and with standard treatment on 4.73. Total treatment to include CS costs increased \$25,470.13 MXP, resulting in an incremental cost per QALY in \$158,587.77 MXP. This incremental cost utility is less than 1 Mexican PIB per capita. Deterministic and probabilistic sensitivity analyses showed the robustness of the results. **CONCLUSIONS:** CS is a cost efficient and useful for the treatment of OA in public health systems

### PMS36

#### EXAMINING THE RELATIONSHIP BETWEEN MONTHLY OUT-OF-POCKET HEALTHCARE COSTS AND WORK PRODUCTIVITY AMONG INDIVIDUALS WITH RHEUMATOID ARTHRITIS

Naim A<sup>1</sup>, DiBonaventura M<sup>2</sup>, Bolge S<sup>1</sup>

<sup>1</sup>Centocor Ortho Biotech Services, LLC, Horsham, PA, USA, <sup>2</sup>Kantar Health, New York, NY, USA

**OBJECTIVES:** The relationship between out-of-pocket (OOP) healthcare costs with productivity is not well known. This study explores the relationship of OOP healthcare costs on productivity. **METHODS:** Participants self-identified with RA and aged ≥18 completed an internet-based cross-sectional survey in 1Q2009. Self-reported productivity loss including absenteeism, presenteeism, overall work impairment and activity impairment expressed as impairment percentages, were measured by the Work Productivity and Activity Impairment questionnaire. Participants were asked about RA-related and overall monthly OOP healthcare costs. Negative binomial regression models were developed to adjust for age, gender, ethnicity, income, education, and marital status. **RESULTS:** 455 RA patients participated in the survey. Average age was 52 years, 67% were female, 36% were employed, and 23% were on short- or long-term disability. More than half (53%) reported annual household incomes between \$50-100K, and 30% were college educated. Overall monthly OOP costs were: \$0-\$50 for 54.1%, \$51-\$100 for 19.3%, \$101-\$200 for 15.8%, and >\$200 for 10.8%. Among employed patients, the rates of absenteeism, presenteeism, and overall work impairment were 13.7%, 23.7% and 28.9%, respectively. Both employed and unemployed patients reported 58.4% impairment in daily activities. Significantly greater productivity loss (presenteeism, b = 1.01, p = 0.038) and activity impairment (b = 0.21, p = 0.006) were observed among patients with overall OOP costs >\$200, and significantly greater activity impairment was observed among the OOP costs category of \$101-200 (b = 0.15, p = 0.026) as compared to those with OOP costs between \$0-50 after adjusting for patient demographics. **CONCLUSIONS:** Higher monthly OOP costs were associated with higher activity impairment and lower productivity; however, due to cross-sectional study design, direction of associations cannot be determined. Shifting healthcare costs to employees may be associated with productivity loss. Further research is needed to determine long-term impact of OOP healthcare costs on work productivity.

#### Muscular-Skeletal Disorders – Patient-Reported Outcomes & Preference-Based Studies

### PMS37

#### INDIRECT COMPARISON OF ADALIMUMAB VERSUS ETANERCEPT FOR THE TREATMENT OF PSORIATIC ARTHRITIS

Kirson N<sup>1</sup>, Rao S<sup>2</sup>, Birnbaum HG<sup>1</sup>, Kantor E<sup>1</sup>, Wei R<sup>1</sup>, Cifaldi M<sup>2</sup>

<sup>1</sup>Analysis Group, Inc., Boston, MA, USA, <sup>2</sup>Abbott Laboratories, Abbott Park, IL, USA